

of recession in Canadian glaciers kept under observation averages 50 to 100 feet a year and "the shrinkage has been speeded up in the years immediately passed."

Based on his findings, Dr. de Quervain has made specific recommendations to the National Research Council. One suggestion in the report itself is "the idea of an ice-testing bomb for aircraft."

In an appendix, D. C. Pearce summarizes his journey with Dr. de Quervain to visit snow and ice institutions in Canada and the U.S.A. Including an ice reconnaissance flight, "which revealed most strikingly the extent of the ice cover on Hudson Bay," the party covered approximately 15,000 miles in two and a half months.

A. H. BOLITHO

MOUNTAINEERING HANDBOOK. Published for the Association of British Members of the Swiss Alpine Club, 1950. London: Paternoster Press. 168 pages, 60 illustrations.

THIS book is appropriately mentioned in these columns for the fact that it provides valuable help to those glaciologists who intend doing research work on snow mountains and glaciers but may not be experienced alpinists. Three excellent chapters are devoted to this aspect of the subject. Translated from the Swiss *Bergsteigen* by a panel of expert British mountaineers it speaks with double authority and is strongly recommended for the soundness of its approach and its clarity, not only to those mentioned above but to all who intend wandering or climbing in the mountains.

G. S.

REVUE DE GÉOMORPHOLOGIE DYNAMIQUE. (Édition de la Société d'Enseignement Supérieur, Paris). No. 1, 1950, 52 pages.

As a result of the cessation of publication of several journals it had proved difficult to find a suitable vehicle for long and heavily illustrated articles on geomorphological and cognate subjects. In order to fill this gap a new publication edited by Mm. André Cailleux and Jean Tricart has been produced. It will be published bi-monthly, each number consisting of 48 pages. The entries in the bibliographical section are "displayed," which permits of their being cut out and mounted on cards. This should be a very convenient feature, if somewhat wasteful of space.

The first number is mimeographed, but perhaps one may hope for a printed journal later. This new venture has the support of many distinguished scientists and members of other faculties and this, coupled with the well-known names of the Editors, should guarantee its success. Correspondence should be addressed to the Laboratoire de Géographie, Université de Strasbourg.

G. S.

ABSTRACTS

DULHUNTY, J. A. On glacial lakes in the Kosciusko Region. *Journal and Proceedings Royal Society of New South Wales*, Vol. 79, Pt. IV, 1945 (published 1946), p. 143-52.

From an examination of the contours and soundings made with a specially contrived apparatus, it is concluded that abnormal conditions of vegetation and soil formation existing on the undissected, glaciated surface of the Kosciusko region have been responsible for the survival of alpine lakes throughout the post-glacial period. [G. S.]

HOUGH, JACK L. Pleistocene lithology of Antarctic ocean-bottom sediments. *Journal of Geology*, Vol. 58, No. 3, 1950, p. 254-60.

Three ocean-bottom core samples were obtained from within the pack-ice area in the mouth of the Ross Sea, Antarctica, during the U.S. Navy Antarctic Expedition of 1946-47. These cores consist of several alternations of glacial marine sediment and of fine-grained sediment which apparently is nonglacial. Age determinations of the material, made by Dr. W. D. Urry, provide a time scale on which the lithology may be plotted. Because the cores record periods of from one hundred and seventy thousand to over a million years, a record of the Pleistocene glacial history of Antarctica is provided. A comparison of this with the record for the Northern Hemisphere indicates that glaciation was contemporaneous in the two hemispheres. [Author's abstract.]

LAWRENCE, DONALD B. Estimating dates of recent glacier advances and recession rates by studying tree growth layers. *Transactions, American Geophysical Union*, Vol. 31, No. 2, Pt. 1, 1950, p. 243-48.

Study of the growth layers of trees growing along the margins and below the terminus of a present-day receding glacier reveals the minimum lapse of time in years since the glacier advanced beyond a given point, and the approximate rates at which recession has occurred. Study of cross sections of trees pushed part way over by ice pressure at the time of maximum glacier advance and left in a tilted position to continue growth until the present, discloses the exact year of the maximum advance. This is detected through a change in form of growth layers in the trunk cross section. Growth while the tree is erect is concentric about the growth center; that after trunk tilting is asymmetric. The non-conformity between concentric central growth and eccentric outer growth marks the year of the tilting. This technique and others described here may be used to date landslides, windstorms, and river floods as well as glacier fluctuations.

[Author's abstract.]

THOMPSON, H. R. Some corries of north-west Sutherland. *Proceedings of the Geologists' Association*, Vol. 61, Pt. 2, 1950, p. 145-55.

Among the conclusions of the author are the following: Quartzite breaks up more readily than gneiss under the influence of melting and re-freezing. The effect of moving ice on gneiss is largely confined to polishing and sapping. Rock basins in corrie floors may possibly have been formed in pre-glacial times, but were more probably excavated by debris-armed ice, the action of which may have been that of rotational slipping.

[G. S.]

VIETE, GÜNTER. Ueber die allgemeine atmosphärische Zirkulation während der diluvialen Vereisungsperioden. *Tellus*, Vol. 2, No. 2, 1950, p. 102-15.

The range of polar cold air over the northern hemisphere was increased during the glacial periods primarily due to the extension of the large ice shields. Particularly in the north Atlantic region the atmospheric centers of action and the storm tracks were shifted southwards, the meridional temperature gradient was strengthened and consequently the general circulation increased. This intensification of the large scale exchange of air does not contradict the recent increase of the general circulation and its consequences, since during the glacial periods the increase was of a compulsory and secondary nature caused by the ice extension itself. On the contrary the atmospheric circulation at the beginning of the glaciation must have been decreased. However, the continued extension of the Scandinavian ice shields, as well as the creation of the Keewatin and Labrador shields in North America and the North Asian glaciation, occurred during periods of secondarily increased circulation. An examination of the most important Ice Age theories shows that the primary weakening of the circulation may be satisfactorily explained only by assuming a decrease of the earth's solar radiation supply. The astronomical Ice Age theory is applicable only in connection with the assumption of an uplift of the Iceland-Faerisland submarine ridge.

[Author's abstract.]

WISEMAN, J. D. H., and OVEY, C. D. Recent investigations on the deep-sea floor. *Proceedings of the Geologists' Association*, Vol. 61, Pt. 1, 1950, p. 28-84.

It is becoming evident that in order to interpret correctly the earth's history it is necessary to investigate the deep-sea floor, which covers approximately two-thirds of the earth's surface. Owing to the great increase of bathymetrical soundings with the development of the echo-sounder and the publication of bathymetrical charts, it has been possible to develop a rational classification of deep-sea morphological features. The origin of these features is discussed. . . . As satisfactory methods have now been developed for obtaining long cores from the deep-sea floor it is possible to investigate past oceanic history as far back as the Pliocene. The various methods by which past oceanic history may be revealed are described. . . . The use of radium determinations for marine chronology is discussed. . . . The use of planktonic foraminifera in the interpretation of chemical changes from washed core samples is discussed. Brief notes are given concerning the individual planktonic species used as temperature indicators. A short survey of the implication of chemical changes from a study of the deep-sea floor is given, mentioning a few of the theories advanced to account for them in the Pleistocene and the dangers of arriving too hurriedly at conclusions from the analysis of only a few cores.

[From authors' abstract]

GLACIOLOGICAL LITERATURE

THIS bi-annual list of glaciological literature aims to cover the *scientific* aspects of snow and ice in all parts of the world. Attention is drawn to the bibliographies in each number of the *Polar Record* (Cambridge), which aim to cover the significant work dealing with expeditions, research, equipment and conditions of living in the Polar regions. Both journals, however, deal with Polar literature having specific glaciological interest and with general matters of a practical nature such as snowcraft.

Readers will greatly assist the Editor by notifying him of their own, or any other, publication of glaciological interest.

AHLMANN, HANS WILSON. *Glaciological research on the North Atlantic coasts*. London, Royal Geographical Society, 1948. [iv], 83 p., maps, tables, diagrs., 24½ cm. (R.G.S. research series, No. 1). 7s. 6d. [Summarizes results of author's researches in Norway, Sweden, Svalbard, Iceland, and north-east Greenland, 1918-46.]

ALIMEN, H., and DAVID, P. Cryoturbations dans des couches archéologiques de la Charente et du Périgord *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 229, No. 23, 1949, p. 1246-47. [Fossil evidence of soil polygons in archaeological beds.]

[ARCTIC CARTOGRAPHY.] *The American Geographical Society's map of the Americas*, 1 : 5,000,000. *Index to the two sheets Alaska, northern Canada, and Greenland [and] United States, southern Canada, and Newfoundland*. New York, N.Y., American Geographical Society, 1948. [100] p., 25½ cm. \$1.00.

ARMSTRONG, TERENCE. Study of sea ice in the Soviet Arctic, 1920-45. *Polar Record*. Vol. 5, No. 39, 1950, p. 468-73. [Review of work done by scientists of the Arctic Institute at Leningrad.]